

(12) **United States Patent**  
**Benson et al.**

(10) **Patent No.:** US 6,654,705 B1  
(45) **Date of Patent:** Nov. 25, 2003

**(54) SYSTEM FOR DETECTING A SURFACE CONTOUR OF THE HUMAN FOOT**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(21) Appl. No.: 09/414,456

(22) Filed: **Oct. 7, 1999**

(51) Int. Cl.<sup>7</sup> ..... G01B 7/00

(52) **U.S. Cl.** ..... 702/168; 702/152

(58) **Field of Search** ..... 702/166-168,  
702/170, 179, 187, 150, 152, 155

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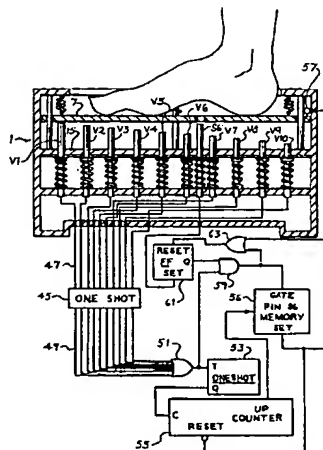
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(57) **ABSTRACT**

A method and apparatus for sensing the surface contour of the human foot uses an array of sensing pins that are resiliently biased in an extended position by springs. As a foot is pressed down on the pins, a counter counts decrements of vertical movement and therefore generates a count state that corresponds to the relative displacement of the foot in relation to the pins. As each pin contacts the surface of the foot, a control mechanism automatically stores the relative displacement position at which the pin is touched by the foot. These stored values provide a digital representation of the sensed contour of the foot. This digital data may be used to provide a contour image of the foot or select or manufacture shoes or shoe inserts. The contour data may also be used to obtain medical information concerning the shape of the foot.

**72 Claims, 14 Drawing Sheets**



US-PAT-NO: 6654705

DOCUMENT-IDENTIFIER: US 6654705 B1

TITLE: System for detecting a surface contour of the human foot

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Detailed Description Text - DETX (127):

The device described with respect to FIGS. 24-27 is preferred at this time because it is relatively inexpensive and can be implemented with battery power. This device would be particularly effective for use in the home or in retail shoe outlets. The data from the device could be easily transmitted over the Internet by a standard serial port connection. Accordingly, the device could communicate foot measurements or corresponding shoe size designations to a web site, for example, to allow a user to select and order shoes. Data would be stored at the site to keep track of the user's foot measurements and preferences for shoes. As used herein and in the claims, any reference to the size of the foot refers to the dimensions of the foot as well as the corresponding shoe size. This database would be particularly useful for obtaining shoes for children. The database would also allow users to obtain suggestions for shoes based upon purchases made by others who have a similar size. The database could also be accessed to allow a gift giver to purchase shoes based upon the size and preferences listed for a particular individual.